

CLAIMS:

1. A method of mapping internet protocol (IP) based data and signalling data for a forming a single connection between a first station and a second station in a code division multiple access (CDMA) system, using two or more sets of physical channels, each of the physical channels in each set utilising the same spreading factor as other physical channels in that set, the IP-based data including header data and application data, each of the header data, signalling data and application data being assigned to at least one transport channel ("TrCH"), the method including the steps of:
- (a) mapping at least a first one of the transport channels to a first one of the sets of physical channels; and
 - (b) mapping at least a second one of the transport channels to a second one of the sets of physical channels.
2. A method according to claim 1, wherein a first spreading factor is applied to the first set of physical channels on the basis of a data rate of the first one of the transport channels, and a second spreading factor is applied to the second set of physical channels on the basis of a data rate of the second one of the transport channels.
3. A method according to claim 2, wherein the first spreading factor and the second spreading factor are different from each other.
4. A method according to claim 3, wherein the first spreading factor is constant, and the second spreading factor is changed over time.

5. A method according to claim 4, wherein the second spreading factor is varied between first and second spreading factor values.

5 6. A method according to claim 4, wherein the size of the header is variable over time.

7. A method according to claim 6, wherein the size of the header varies over time depending upon the amount or type of
10 header compression applied.

8. A method according to claim 6, wherein a full header is initially transmitted and a compressed header is subsequently transmitted, the second spreading factor applied to the second
15 set of physical channels being a relatively low value for the initial transmission and being a relatively high value for the subsequent transmission.

9. A method according to claim 1, wherein each of the sets
20 of is defined by a coded composite transport channel (CCTrCH) in an UTRA-based communications system.

10. A method according to claim 1, wherein one or more of the sets of physical channels includes a single physical channel.
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11. A method according to claim 1, wherein one or more of the sets of physical channels includes a plurality of physical channels.

30 12. A network element for mapping internet protocol (IP) based data and signalling data to form a single connection between a first station and a second station in a code

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division multiple access (CDMA) system, using two or more sets of physical channels, each of the physical channels in each set utilising the same spreading factor as other physical channels in that set, the IP-based data including header data and application data, each of the header data, signalling data and application data being assigned to at least one transport channel ("TrCH"), the network element including mapping means configured for:

- (a) mapping at least a first one of the transport channels to a first one of the sets of physical channels; and
- (b) mapping at least a second one of the transport channels to a second one of the sets of physical channels.

13. A network element according to claim 12, wherein a first spreading factor is applied to the first set of physical channels on the basis of a data rate of the first one of the transport channels, and a second spreading factor is applied to the second set of physical channels on the basis of a data rate of the second one of the transport channels.

14. A network element according to claim 13, wherein the first spreading factor and the second spreading factor are different from each other.

15. A network element according to claim 13, wherein the first spreading factor is constant, and the second spreading factor is changed over time.

16. A network element according to claim 15, wherein the second spreading factor is varied between first and second spreading factor values.

17. A network element according to claim 15, wherein the size of the header is variable over time.

18. A network element according to claim 17, wherein the size of the header varies over time depending upon the amount or type of header compression applied.

19. A network element according to claim 17, wherein a full header is initially transmitted and a compressed header is subsequently transmitted, the second spreading factor applied to the second set of physical channels being a relatively low value for the initial transmission and being a relatively high value for the subsequent transmission.

20. A network element according to claim 12, wherein each of the sets of is defined by a coded composite transport channel (CCTrCH) in an UTRA-based communications system.

21. A network element according to claim 12, wherein one or more of the sets of physical channels includes a single physical channel.

22. A network element according to claim 12, wherein one or more of the sets of physical channels includes a plurality of physical channels.